



SEQUENCE LISTING

RECEIVED
MAR 24 2005
OFFICE OF PETITIONS

<110> PANGALOS, Menelas
NEEFS, Jean-Marc
PEETERS, Danielle

<120> CLONING AND CHARACTERISATION OF NOVEL MAMMALIAN PEPTIDASES

<130> J0205.70000US00

<140> US 09/743,647

<141> 2001-01-12

<150> GB 9815284.6

<151> 1999-07-14

<160> 59

<170> PatentIn version 3.0

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<223> Primer NAALID1S2

<400> 1
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<223> Primer NAALD1AS2

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cccctcgagt taggctactt cactcaaagt ctctgc

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<211> 40

<212> DNA

<213> Homo sapiens

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<223> Primer NAALD1-SDM-S1

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<213> Homo sapiens

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gttcttcaac aagctgcagg agcg

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<223> Primer NAALD2S2

<400> 7
ggcgacctga gcatctacga caac

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<211> 31

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<223> Primer NAALD2AS2 (XhoI)

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<400> 10

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22

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<223> Adaptor-primer AP1

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27

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<223> Primer NAALD2AS6

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<223> Primer NAALD2AS8 (MunI)

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26

<210> 19

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<212> DNA

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<223> Primer NAALD2S8 (MunI)

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gcgtcctcgc agatcaattg tgtttg

26

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<212> DNA

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<223> Primer NAALD3AS1

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<210> 24

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<210> 25

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<223> Primer NAALD1AS3

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<223> Primer NAALD2S7

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<210> 27

<211> 23

<212> DNA

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<223> Primer NAALD2AS7

<400> 27
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23

<210> 28

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<223> Primer NAALD3S4

<400> 28
cactaagaat aagaaaacag ataagtacag c

31

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<212> DNA

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<223> Primer NAALD3AS4

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33

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<211> 25

<212> DNA

<213> Homo sapiens

<220>

<223> Primer NAALD4S1

<400> 30
gcagaagaac aaggtggagt tgggtg

25

<210> 31

<211> 24

<212> DNA

<213> Homo sapiens

<220>

<223> Primer NAALD4AS1

<400> 31
gctttggatc catgacagtc atgg

24

<210> 32

<211> 26

<212> DNA

<213> Homo sapiens

<220>

<223> GAPDH sense primer

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26

<210> 33

<211> 24

<212> DNA

<213> Homo sapiens

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<223> GAPDH anti-sense primer

<400> 33

catgtgggcc atgagggtcca ccac

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<210> 34

<211> 2320

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (315)..(315)

<223> n is a, c, g, or t

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ggccccccag gacctggacc tggagatcct ggagaccgtc atggggcagc tggatgcccc	180
caggatccgg gagaacctca gagaactctc caggagacca cacctggcct ccagccctcg	240
ggatgaggac ctggtgcagc tgctgctgca gcgctggaag gaccagagt caggcctgga	300
ctcggccgag gcctncacgt acgaagtgtc gctgtccttc cctagccagg agcagcccaa	360
cgctgtggac atcgtgggcc ccaactgggg catcatccac tcctgccacc ggactgagga	420
gaacgtgacc ggggagcaag gggggccaga tgttgtacaa ccctatgctg cctatgctcc	480
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tgtagggcgt ggggccaagg ctgtgaacgc tgccaagcac ggggtagctg gggctgtggt	660
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ccctctgact ccctaccttc cagccgtccc ctcttccttc cgcgtggacc ttgccaatgt	840

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caagtttttg	gacccgggct	tcagcagcca	tcaggctgtg	gcccgacag	cggggagtgt	1740
gattctccgg	ctcagtgaca	gcttcttctc	gcccctcaaa	gtcagtgact	acagtgagac	1800
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gctatccaat	gctgctcca	gggccaggga	cacagcttct	ggatctgaag	cttgggctga	2160
ggtcagaga	cagctcagca	ttgtggtgac	agccctggag	ggtgcggcag	ccaccctgag	2220
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<210> 35

<211> 740

<212> PRT

<213> Homo sapiens

<220>

<221> misc_feature

<222> (100)..(100)

<223> Xaa can be any naturally occurring amino acid

<400> 35

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Leu Gly Leu Gly Ile Ile Leu Gly His Phe Ala Ile Pro Lys Lys Ala
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Asn Ser Leu Ala Pro Gln Asp Leu Asp Leu Glu Ile Leu Glu Thr Val
35 40 45

Met Gly Gln Leu Asp Ala His Arg Ile Arg Glu Asn Leu Arg Glu Leu
50 55 60

Ser Arg Glu Pro His Leu Ala Ser Ser Pro Arg Asp Glu Asp Leu Val
65 70 75 80

Gln Leu Leu Leu Gln Arg Trp Lys Asp Pro Glu Ser Gly Leu Asp Ser
85 90 95

Ala Glu Ala Xaa Thr Tyr Glu Val Leu Leu Ser Phe Pro Ser Gln Glu
100 105 110

Gln Pro Asn Val Val Asp Ile Val Gly Pro Thr Gly Gly Ile Ile His
115 120 125

Ser Cys His Arg Thr Glu Glu Asn Val Thr Gly Glu Gln Gly Gly Pro
130 135 140

Asp Val Val Gln Pro Tyr Ala Ala Tyr Ala Pro Ser Gly Thr Pro Gln
145 150 155 160

Gly Leu Leu Val Tyr Ala Asn Arg Gly Ala Glu Glu Asp Phe Lys Glu
165 170 175

Leu Gln Thr Gln Gly Ile Lys Leu Glu Gly Thr Ile Ala Leu Thr Arg
180 185 190

Tyr Gly Gly Val Gly Arg Gly Ala Lys Ala Val Asn Ala Ala Lys His
195 200 205

Gly Val Ala Gly Val Leu Val Tyr Thr Asp Pro Ala Asp Ile Asn Asp
210 215 220

Gly Leu Ser Ser Pro Asp Glu Thr Phe Pro Asn Ser Trp Tyr Leu Pro
225 230 235 240

Pro Ser Gly Val Glu Arg Gly Ser Tyr Tyr Glu Tyr Phe Gly Asp Pro
245 250 255

Leu Thr Pro Tyr Leu Pro Ala Val Pro Ser Ser Phe Arg Val Asp Leu
260 265 270

Ala Asn Val Ser Gly Phe Pro Pro Ile Pro Thr Gln Pro Ile Gly Phe
 275 280 285
 Gln Asp Ala Arg Asp Leu Leu Cys Asn Leu Asn Gly Thr Leu Ala Pro
 290 295 300
 Ala Thr Trp Gln Gly Ala Leu Gly Cys His Tyr Arg Leu Gly Pro Gly
 305 310 315 320
 Phe Arg Pro Asp Gly Asp Phe Pro Ala Asp Ser Gln Val Asn Val Ser
 325 330 335
 Val Tyr Asn Arg Leu Glu Leu Arg Asn Ser Ser Asn Val Leu Gly Ile
 340 345 350
 Ile Arg Gly Ala Val Glu Pro Asp Arg Tyr Val Leu Tyr Gly Asn His
 355 360 365
 Arg Asp Ser Trp Val His Gly Ala Val Asp Pro Ser Ser Gly Thr Ala
 370 375 380
 Val Leu Leu Glu Leu Ser Arg Val Leu Gly Thr Leu Leu Lys Lys Gly
 385 390 395 400
 Thr Trp Arg Pro Arg Arg Ser Ile Val Phe Ala Ser Trp Gly Ala Glu
 405 410 415
 Glu Phe Gly Leu Ile Gly Ser Thr Glu Phe Thr Glu Glu Phe Phe Asn
 420 425 430
 Lys Leu Gln Glu Arg Thr Val Ala Tyr Ile Asn Val Asp Ile Ser Val
 435 440 445
 Phe Ala Asn Ala Thr Leu Arg Val Gln Gly Thr Pro Pro Val Gln Ser
 450 455 460
 Val Val Phe Ser Ala Thr Lys Glu Ile Arg Ser Pro Gly Pro Gly Asp
 465 470 475 480
 Leu Ser Ile Tyr Asp Asn Trp Ile Arg Tyr Phe Asn Arg Ser Ser Pro
 485 490 495
 Val Tyr Gly Leu Val Pro Ser Leu Gly Ser Leu Gly Ala Gly Ser Asp
 500 505 510
 Tyr Ala Pro Phe Val His Phe Leu Gly Ile Ser Ser Met Asp Ile Ala
 515 520 525
 Tyr Thr Tyr Asp Arg Ser Lys Thr Ser Ala Arg Ile Tyr Pro Thr Tyr
 530 535 540
 His Thr Ala Phe Asp Thr Phe Asp Tyr Val Asp Lys Phe Leu Asp Pro
 545 550 555 560
 Gly Phe Ser Ser His Gln Ala Val Ala Arg Thr Ala Gly Ser Val Ile
 565 570 575
 Leu Arg Leu Ser Asp Ser Phe Phe Leu Pro Leu Lys Val Ser Asp Tyr
 580 585 590
 Ser Glu Thr Leu Arg Ser Phe Leu Gln Ala Ala Gln Gln Asp Leu Gly

595 600 605
 Ala Leu Leu Glu Gln His Ser Ile Ser Leu Gly Pro Leu Val Thr Ala
 610 615 620
 Val Glu Lys Phe Glu Ala Glu Ala Ala Ala Leu Gly Gln Arg Ile Ser
 625 630 635 640
 Thr Leu Gln Lys Gly Ser Pro Asp Pro Leu Gln Val Arg Met Leu Asn
 645 650 655
 Asp Gln Leu Met Leu Leu Glu Arg Thr Phe Leu Asn Pro Arg Ala Phe
 660 665 670
 Pro Glu Glu Arg Tyr Tyr Ser His Val Leu Trp Ala Pro Ser His Gly
 675 680 685
 Leu Arg Ser His Ile Pro Gly Leu Ser Asn Ala Cys Ser Arg Ala Arg
 690 695 700
 Asp Thr Ala Ser Gly Ser Glu Ala Trp Ala Glu Val Gln Arg Gln Leu
 705 710 715 720
 Ser Ile Val Val Thr Ala Leu Glu Gly Ala Ala Ala Thr Leu Arg Pro
 725 730 735
 Val Ala Asp Leu
 740

<210> 36

<211> 745

<212> PRT

<213> Rattus rattus

<400> 36

Met His Trp Ala Lys Ile Leu Gly Val Gly Ile Gly Ala Ala Ala Leu
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 Leu Gly Leu Gly Ile Ile Leu Gly His Phe Ala Ile Pro Lys Ala Thr
 20 25 30
 Glu Pro Leu Ala Ser Ser Val Ser Asp Ser Gln Asp Leu Asp Leu Ala
 35 40 45
 Ile Leu Asp Ser Val Met Gly Gln Leu Asp Ala Ser Arg Ile Arg Glu
 50 55 60
 Asn Leu Arg Glu Leu Ser Lys Glu Pro His Val Ala Thr Ser Ala Arg
 65 70 75 80
 Asp Glu Ala Leu Val Gln Leu Leu Leu Gly Arg Trp Lys Asp Ser Ala
 85 90 95
 Ser Gly Leu Asp Thr Ala Lys Thr Tyr Glu Tyr Thr Val Leu Leu Ser
 100 105 110

Phe	Pro	Ser	Thr	Glu	Gln	Pro	Asn	Ser	Val	Glu	Val	Val	Gly	Pro	Asn	
		115					120					125				
Gly	Thr	Val	Phe	His	Ser	Phe	Gln	Pro	Phe	Glu	Lys	Asn	Leu	Thr	Gly	
	130					135					140					
Glu	Gln	Ala	Glu	Pro	Asn	Val	Leu	Gln	Pro	Tyr	Ala	Ala	Tyr	Ala	Pro	
145					150					155					160	
Pro	Gly	Thr	Pro	Lys	Gly	Pro	Leu	Val	Tyr	Ala	Asn	Arg	Gly	Ser	Glu	
				165					170					175		
Asp	Asp	Phe	Lys	Lys	Leu	Glu	Ala	Glu	Gly	Ile	Asn	Leu	Lys	Gly	Thr	
			180					185					190			
Ile	Ala	Leu	Thr	Arg	Tyr	Gly	Ser	Val	Gly	Arg	Gly	Ala	Lys	Ala	Ile	
		195					200					205				
Asn	Ala	Ala	Arg	His	Gly	Val	Val	Gly	Val	Leu	Val	Tyr	Thr	Asp	Pro	
		210				215					220					
Gly	Asp	Ile	Asn	Asp	Gly	Lys	Ser	Leu	Pro	Asn	Glu	Thr	Phe	Pro	Asn	
225					230					235					240	
Ser	Trp	Gly	Leu	Pro	Pro	Ser	Gly	Val	Glu	Arg	Gly	Ser	Tyr	Tyr	Glu	
				245					250					255		
Tyr	Phe	Gly	Asp	Pro	Leu	Thr	Pro	Tyr	Leu	Pro	Ala	His	Pro	Val	Ser	
			260					265					270			
Phe	Arg	Leu	Asp	Pro	His	Asn	Ile	Ser	Gly	Phe	Pro	Pro	Ile	Pro	Thr	
		275					280					285				
Gln	Pro	Ile	Gly	Phe	Glu	Asp	Ala	Lys	Asn	Leu	Leu	Cys	Asn	Leu	Asn	
	290					295					300					
Gly	Thr	Ser	Ala	Pro	Asp	Ser	Trp	Gln	Gly	Ala	Leu	Gly	Cys	Glu	Tyr	
305					310					315					320	
Lys	Leu	Gly	Pro	Gly	Phe	Glu	Pro	Asn	Gly	Asn	Phe	Pro	Ala	Gly	Ser	
				325					330					335		
Glu	Val	Lys	Val	Ser	Val	Tyr	Asn	Arg	Leu	Glu	Leu	Arg	Asn	Ser	Ser	
			340					345					350			
Asn	Val	Leu	Gly	Ile	Ile	Gln	Gly	Ala	Val	Glu	Pro	Asp	Arg	Tyr	Val	
		355					360					365				
Ile	Tyr	Gly	Asn	His	Arg	Asp	Ser	Trp	Val	His	Gly	Ala	Val	Asp	Pro	
	370					375					380					
Ser	Ser	Gly	Thr	Ala	Val	Leu	Leu	Glu	Ile	Ser	Arg	Val	Leu	Gly	Thr	
385					390					395					400	
Leu	Leu	Lys	Lys	Gly	Thr	Trp	Arg	Pro	Arg	Arg	Ser	Ile	Ile	Phe	Ala	
				405					410					415		
Ser	Trp	Gly	Ala	Glu	Glu	Phe	Gly	Leu	Ile	Gly	Ser	Thr	Glu	Phe	Thr	
			420					425					430			
Glu	Glu	Phe	Leu	Ser	Lys	Leu	Gln	Glu	Arg	Thr	Val	Thr	Tyr	Ile	Asn	

435					440					445					
Val	Asp	Ile	Ser	Val	Phe	Ser	Asn	Ala	Thr	Leu	Arg	Ala	Gln	Gly	Thr
450						455					460				
Pro	Pro	Val	Gln	Ser	Val	Ile	Phe	Ser	Ala	Thr	Lys	Glu	Ile	Ser	Ala
465					470					475					480
Pro	Gly	Ser	Ser	Gly	Leu	Ser	Ile	Tyr	Asp	Asn	Trp	Ile	Arg	Tyr	Thr
				485					490					495	
Asn	Arg	Ser	Ser	Pro	Val	Tyr	Gly	Leu	Val	Pro	Ser	Met	Gly	Thr	Leu
			500					505					510		
Gly	Ala	Gly	Ser	Asp	Tyr	Ala	Ser	Phe	Ile	His	Phe	Leu	Gly	Ile	Thr
		515					520					525			
Ser	Met	Asp	Leu	Ala	Tyr	Thr	Tyr	Asp	Arg	Ser	Lys	Thr	Ser	Ala	Arg
	530					535					540				
Ile	Tyr	Pro	Thr	Tyr	His	Thr	Ala	Phe	Asp	Thr	Phe	Asp	Tyr	Val	Glu
545					550					555					560
Lys	Phe	Leu	Asp	Pro	Gly	Phe	Ser	Ser	His	Gln	Ala	Val	Ala	Arg	Thr
				565					570					575	
Ala	Gly	Ser	Val	Leu	Leu	Arg	Leu	Ser	Asp	Ser	Leu	Phe	Leu	Pro	Leu
			580					585					590		
Asn	Val	Ser	Asp	Tyr	Ser	Glu	Thr	Leu	Gln	Ser	Phe	Leu	Gln	Ala	Ala
		595					600					605			
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	610					615					620				
Pro	Leu	Val	Thr	Ala	Val	Glu	Lys	Phe	Lys	Ala	Ala	Ala	Ala	Ala	Leu
625					630					635					640
Asn	Gln	His	Ile	Leu	Thr	Leu	Gln	Lys	Ser	Ser	Pro	Asp	Pro	Leu	Gln
				645					650					655	
Val	Arg	Met	Val	Asn	Asp	Gln	Leu	Met	Leu	Leu	Glu	Arg	Ala	Phe	Leu
			660					665					670		
Asn	Pro	Arg	Ala	Phe	Pro	Glu	Glu	Arg	Tyr	Tyr	Ser	His	Val	Leu	Trp
		675					680					685			
Ala	Pro	Asn	Thr	Ala	Ser	Val	Ala	Thr	Phe	Pro	Gly	Leu	Ala	Asn	Ala
	690					695					700				
Tyr	Ala	Arg	Ala	Gln	Glu	Ile	Asn	Ser	Gly	Ala	Glu	Ala	Trp	Ala	Glu
705					710					715					720
Val	Glu	Arg	Gln	Leu	Ser	Ile	Ala	Val	Met	Ala	Leu	Glu	Gly	Ala	Ala
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<211> 41

<212> PRT

<213> Homo sapiens

<400> 37

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Leu Gln Thr Gln Gly Ile Lys Leu Glu Gly Thr Ile Ala Leu Thr Arg
20 25 30

Tyr Gly Gly Val Gly Arg Gly Ala Lys
35 40

<210> 38

<211> 35

<212> PRT

<213> Homo sapiens

<400> 38

Cys Asn Leu Asn Gly Thr Leu Ala Pro Ala Thr Trp Gln Gly Ala Leu
1 5 10 15

Gly Cys His Tyr Arg Leu Gly Pro Gly Phe Arg Pro Asp Gly Asp Phe
20 25 30

Pro Ala Asp
35

<210> 39

<211> 20

<212> PRT

<213> Homo sapiens

<400> 39

Arg Leu Gln Gln Pro Ser Gly Cys Gly Pro Asp Ser Gly Glu Cys Asp
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Ser Pro Ala Gln
20

<210> 40

<211> 41

<212> PRT

<213> Homo sapiens

<400> 40

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Pro	Leu	Thr	Met	Trp	Thr	Ser	Phe	Trp	Thr	Arg	Ala	Ser	Ala	Ala	Ile
			20					25					30		
Arg	Leu	Trp	Pro	Gly	Gln	Arg	Gly	Val							
		35					40								

<210> 41

<211> 229

<212> DNA

<213> Homo sapiens

<400> 41

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tctggatgcc	gctgtcctca	tccagccctg	cccttgccac	caccagccc	agctccccct	180
gccacctct	ccctctcttc	tggttctctg	ccccttttcc	tctggccag		229

<210> 42

<211> 51

<212> PRT

<213> Homo sapiens

<400> 42

Gly	Glu	Pro	Ser	Ser	Cys	Cys	Leu	His	Pro	Arg	Pro	Leu	Leu	Cys	Ser
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Gly	Cys	Arg	Cys	Pro	His	Pro	Ala	Leu	Pro	Leu	Pro	Pro	Pro	Ser	Pro
			20					25					30		
Ala	Pro	Pro	Ala	His	Leu	Ser	Leu	Ser	Ser	Gly	Ser	Leu	Pro	Leu	Phe
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Leu Trp Pro
50

<210> 43

<211> 82

<212> DNA

<213> Homo sapiens

<400> 43

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tggccttgtc accttgccgc ag 82

<210> 44

<211> 17

<212> PRT

<213> Homo sapiens

<400> 44

Glu Glu Gly Asp Lys Gly His Pro Glu Thr Arg Thr Gly Glu Ala Glu
1 5 10 15

Asp

<210> 45

<211> 74

<212> DNA

<213> Homo sapiens

<400> 45

gtatgcacag ccctgaccct gaggtatggg gagccctgca ccccatgac tgagccactg 60

cttggttcctc acag 74

<210> 46

<211> 17

<212> PRT

<213> Homo sapiens

<400> 46

Gly Met His Ser Pro Asp Pro Glu Val Trp Gly Ala Leu His Pro His
1 5 10 15

Asp

<210> 47

<211> 3110

<212> DNA

<213> Homo sapiens

<400> 47

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caaccacttc tgtgcgctat catcaaagta tacgggtggaa actggtatcc gaaatgaaag      180
ctgaaaacat caaatcattt cttcgttctt ttacaaagct tcctcatctg gcaggaacag      240
aacaaaattt cttgcttgcc aagaaaatcc aaaccagtg gaagaaattt ggactagatt      300
cagccaagtt gggttcattat gatgtcctct tatcttacct caatgagaca aatgccaaact      360
atatatcgat tgtggatgaa catgaaactg agattttcaa aacatcatac cttgaaccac      420
caccagatgg ctatgagaat gttacaaata ttgtgccacc atataatgct ttctcagccc      480
aaggcatgcc agaggagat cttgtatatg tgaactatgc tcgcactgaa gactttttca      540
aactagaaag agagatgggc atcaactgta ctgggaagat tgttattgca agatatggaa      600
aaatcttcag aggaaataaa gttaaaaatg ccatgttagc aggagccata ggaatcatct      660
tgtactcaga tccagctgac tactttgctc ctgaggtaca gccatatccc aaaggatgga      720
atcttctctg aactgcagcc cagagaggaa atgtgttaaa tttgaatggg gctggtgacc      780
cactcactcc aggctatcca gcaaaagaat acactttcag acttgatggt gaagaaggag      840
tggaatccc ccgaatacct gtacatccca ttggatataa tgatgcagaa atattattac      900
gctacttggg aggaattgct ccaccagata agagttggaa gggagccctt aatgtgagtt      960
atagtatcgg acctggcttt acaggagtg attctttcag gaaggtaga atgcatgttt     1020
ataacatcaa taaaattaca aggatttaca atgtagttgg aactatcaga ggatctgtgg     1080
aacctgacag gtatgttatt ctgggaggtc accgggactc ctgggtattt ggagctattg     1140
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ctcccccttct	ttaccaatta	gtgtataaac	tgacaaaaga	gatccccagc	cctgatgatg	1440
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aaaatttgcc	tagaatcaat	aagctgggat	ctggaagtga	ctttgaagct	tatttttcaga	1560
gacttggaat	tgcttcaggc	agagcccggt	acactaagaa	taagaaaaca	gataagtaca	1620
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ataaacgact	tatacaagtt	gatcttaaca	atcccattgc	agtgagaatg	atgaatgacc	1980
aactgatgct	cctggaaaga	gcattcatcg	atcctcttgg	tttaccagga	aagctgttct	2040
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gaatctatga	tgctatcttt	gatattgaaa	ataaagccaa	ctctcgtttg	gcctggaaag	2160
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aagaagtatt	atagaaggtc	tcaagtggct	agccattaaa	ggtgttgcta	aaagtctgag	2280
gataaaattc	acctttctga	taacttatga	agccaggggtg	ttctaaactc	ttttcatgtc	2340
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gttaaacata	cacttttact	ttaggactcc	agaattccac	ttctagttat	ttattcaaga	2640
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gactacttac	tactcagcaa	taaaaatgaa	gtaactttca	ataaatgcaa	tattattggc	2820
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tgaagtggca	aactaatctg	tagtggttaa	aattagatta	gtgattgcct	gggccaagtg	2940
gcaggttggg	gaggatggct	gcaaagaagt	atgaggaaac	tttctccaat	agatgagaat	3000

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aagaaaatta agcctcaata aacgtgatta taaaaaaaaa aaaaaaaaagg 3110

<210> 48

<211> 740

<212> PRT

<213> Homo sapiens

<400> 48

Met Ala Glu Ser Arg Gly Arg Leu Tyr Leu Trp Met Cys Leu Ala Ala
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Ala Leu Ala Ser Phe Leu Met Gly Phe Met Val Gly Trp Phe Ile Lys
20 25 30

Pro Leu Lys Glu Thr Thr Thr Ser Val Arg Tyr His Gln Ser Ile Arg
35 40 45

Trp Lys Leu Val Ser Glu Met Lys Ala Glu Asn Ile Lys Ser Phe Leu
50 55 60

Arg Ser Phe Thr Lys Leu Pro His Leu Ala Gly Thr Glu Gln Asn Phe
65 70 75 80

Leu Leu Ala Lys Lys Ile Gln Thr Gln Trp Lys Lys Phe Gly Leu Asp
85 90 95

Ser Ala Lys Leu Val His Tyr Asp Val Leu Leu Ser Tyr Pro Asn Glu
100 105 110

Thr Asn Ala Asn Tyr Ile Ser Ile Val Asp Glu His Glu Thr Glu Ile
115 120 125

Phe Lys Thr Ser Tyr Leu Glu Pro Pro Pro Asp Gly Tyr Glu Asn Val
130 135 140

Thr Asn Ile Val Pro Pro Tyr Asn Ala Phe Ser Ala Gln Gly Met Pro
145 150 155 160

Glu Gly Asp Leu Val Tyr Val Asn Tyr Ala Arg Thr Glu Asp Phe Phe
165 170 175

Lys Leu Glu Arg Glu Met Gly Ile Asn Cys Thr Gly Lys Ile Val Ile
180 185 190

Ala Arg Tyr Gly Lys Ile Phe Arg Gly Asn Lys Val Lys Asn Ala Met
195 200 205

Leu Ala Gly Ala Ile Gly Ile Ile Leu Tyr Ser Asp Pro Ala Asp Tyr
210 215 220

Phe Ala Pro Glu Val Gln Pro Tyr Pro Lys Gly Trp Asn Leu Pro Gly
225 230 235 240

Thr Ala Ala Gln Arg Gly Asn Val Leu Asn Leu Asn Gly Ala Gly Asp
 245 250 255
 Pro Leu Thr Pro Gly Tyr Pro Ala Lys Glu Tyr Thr Phe Arg Leu Asp
 260 265 270
 Val Glu Glu Gly Val Gly Ile Pro Arg Ile Pro Val His Pro Ile Gly
 275 280 285
 Tyr Asn Asp Ala Glu Ile Leu Leu Arg Tyr Leu Gly Gly Ile Ala Pro
 290 295 300
 Pro Asp Lys Ser Trp Lys Gly Ala Leu Asn Val Ser Tyr Ser Ile Gly
 305 310 315 320
 Pro Gly Phe Thr Gly Ser Asp Ser Phe Arg Lys Val Arg Met His Val
 325 330 335
 Tyr Asn Ile Asn Lys Ile Thr Arg Ile Tyr Asn Val Val Gly Thr Ile
 340 345 350
 Arg Gly Ser Val Glu Pro Asp Arg Tyr Val Ile Leu Gly Gly His Arg
 355 360 365
 Asp Ser Trp Val Phe Gly Ala Ile Asp Pro Thr Ser Gly Val Ala Val
 370 375 380
 Leu Gln Glu Ile Ala Arg Ser Phe Gly Lys Leu Met Ser Lys Gly Trp
 385 390 395 400
 Arg Pro Arg Arg Thr Ile Ile Phe Ala Ser Trp Asp Ala Glu Glu Phe
 405 410 415
 Gly Leu Leu Gly Ser Thr Glu Trp Ala Glu Glu Asn Val Lys Ile Leu
 420 425 430
 Gln Glu Arg Ser Ile Ala Tyr Ile Asn Ser Asp Ser Ser Ile Glu Gly
 435 440 445
 Asn Tyr Thr Leu Arg Val Asp Cys Thr Pro Leu Leu Tyr Gln Leu Val
 450 455 460
 Tyr Lys Leu Thr Lys Glu Ile Pro Ser Pro Asp Asp Gly Phe Glu Ser
 465 470 475 480
 Lys Ser Leu Tyr Glu Ser Trp Leu Glu Lys Asp Pro Ser Pro Glu Asn
 485 490 495
 Lys Asn Leu Pro Arg Ile Asn Lys Leu Gly Ser Gly Ser Asp Phe Glu
 500 505 510
 Ala Tyr Phe Gln Arg Leu Gly Ile Ala Ser Gly Arg Ala Arg Tyr Thr
 515 520 525
 Lys Asn Lys Lys Thr Asp Lys Tyr Ser Ser Tyr Pro Val Tyr His Thr
 530 535 540
 Ile Tyr Glu Thr Phe Glu Leu Val Glu Lys Phe Tyr Asp Pro Thr Phe
 545 550 555 560
 Lys Lys Gln Leu Ser Val Ala Gln Leu Arg Gly Ala Leu Val Tyr Glu
 565 570 575

Leu Val Asp Ser Lys Ile Ile Pro Phe Asn Ile Gln Asp Tyr Ala Glu
 580 585 590
 Ala Leu Lys Asn Tyr Ala Ala Ser Ile Tyr Asn Leu Ser Lys Lys His
 595 600 605
 Asp Gln Gln Leu Thr Asp His Gly Val Ser Phe Asp Ser Leu Phe Ser
 610 615 620
 Ala Val Lys Asn Phe Ser Glu Ala Ala Ser Asp Phe His Lys Arg Leu
 625 630 635 640
 Ile Gln Val Asp Leu Asn Asn Pro Ile Ala Val Arg Met Met Asn Asp
 645 650 655
 Gln Leu Met Leu Leu Glu Arg Ala Phe Ile Asp Pro Leu Gly Leu Pro
 660 665 670
 Gly Lys Leu Phe Tyr Arg His Ile Ile Phe Ala Pro Ser Ser His Asn
 675 680 685
 Lys Tyr Ala Gly Glu Ser Phe Pro Gly Ile Tyr Asp Ala Ile Phe Asp
 690 695 700
 Ile Glu Asn Lys Ala Asn Ser Arg Leu Ala Trp Lys Glu Val Lys Lys
 705 710 715 720
 His Ile Ser Ile Ala Ala Phe Thr Ile Gln Ala Ala Ala Gly Thr Leu
 725 730 735
 Lys Glu Val Leu
 740

<210> 49

<211> 1884

<212> DNA

<213> Homo sapiens

<400> 49

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ttaacaagaa aaccaactgg aaaaaaaaaat gaaattcctt atcttcgcat ttttcggtgg	180
tggtcacctt ttatccctgt gctctgggaa agctatatgc aagaatggca tctctaagag	240
gacttttgaa gaaataaaag aagaaatagc cagctgtgga gatgttgcta aagcaatcat	300
caacctagct gtttatggta aagcccagaa cagatcctat gagcgattgg cacttctggt	360
tgatactgtt ggaccagac tgagtggctc caagaaccta gaaaaagcca tccaaattat	420
gtacccaaaac ctgcagcaag atgggctgga gaaagttcac ctggagccag tgagaatacc	480
ccactgggag aggggagaag aatcagctgt gatgctggag ccaagaattc ataagatagc	540

catcctgggt cttggcagca gcattgggac tcctccagaa ggcattacag cagaagttct 600
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tgtttataac caaccttaca tcaactactc aaggacggtg caataccgaa cgcagggggc 720
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aaaggaatca ttctcccctc cctcccacca catagaatca acatatggta gggattacag 1800
tgggggcatt tctttatata acctcttaaa aacattgttt ccactttaaa agtaaact 1860
taataaattt ttggaagatc tctg 1884

<210> 50

<211> 472

<212> PRT

<213> Homo sapiens

<400> 50

Met Lys Phe Leu Ile Phe Ala Phe Phe Gly Gly Val His Leu Leu Ser
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Leu Cys Ser Gly Lys Ala Ile Cys Lys Asn Gly Ile Ser Lys Arg Thr
 20 25 30
 Phe Glu Glu Ile Lys Glu Glu Ile Ala Ser Cys Gly Asp Val Ala Lys
 35 40 45
 Ala Ile Ile Asn Leu Ala Val Tyr Gly Lys Ala Gln Asn Arg Ser Tyr
 50 55 60
 Glu Arg Leu Ala Leu Leu Val Asp Thr Val Gly Pro Arg Leu Ser Gly
 65 70 75 80
 Ser Lys Asn Leu Glu Lys Ala Ile Gln Ile Met Tyr Gln Asn Leu Gln
 85 90 95
 Gln Asp Gly Leu Glu Lys Val His Leu Glu Pro Val Arg Ile Pro His
 100 105 110
 Trp Glu Arg Gly Glu Glu Ser Ala Val Met Leu Glu Pro Arg Ile His
 115 120 125
 Lys Ile Ala Ile Leu Gly Leu Gly Ser Ser Ile Gly Thr Pro Pro Glu
 130 135 140
 Gly Ile Thr Ala Glu Val Leu Val Val Thr Ser Phe Asp Glu Leu Gln
 145 150 155 160
 Arg Arg Ala Ser Glu Ala Arg Gly Lys Ile Val Val Tyr Asn Gln Pro
 165 170 175
 Tyr Ile Asn Tyr Ser Arg Thr Val Gln Tyr Arg Thr Gln Gly Ala Val
 180 185 190
 Glu Ala Ala Lys Val Gly Ala Leu Ala Ser Leu Ile Arg Ser Val Ala
 195 200 205
 Ser Phe Ser Ile Tyr Ser Pro His Thr Gly Ile Gln Glu Tyr Gln Asp
 210 215 220
 Gly Val Pro Lys Ile Pro Thr Ala Cys Ile Thr Val Glu Asp Ala Glu
 225 230 235 240
 Met Met Ser Arg Met Ala Ser His Gly Ile Lys Ile Val Ile Gln Leu
 245 250 255
 Lys Met Gly Ala Lys Thr Tyr Pro Asp Thr Asp Ser Phe Asn Thr Val
 260 265 270
 Ala Glu Ile Thr Gly Ser Lys Tyr Pro Glu Gln Val Val Leu Val Ser
 275 280 285
 Gly His Leu Asp Ser Trp Asp Val Gly Gln Gly Ala Met Asp Asp Gly
 290 295 300
 Gly Gly Ala Phe Ile Ser Trp Glu Ala Leu Ser Leu Ile Lys Asp Leu
 305 310 315 320
 Gly Leu Arg Pro Lys Arg Thr Leu Arg Leu Val Leu Trp Thr Ala Glu
 325 330 335
 Glu Gln Gly Gly Val Gly Ala Phe Gln Tyr Tyr Gln Leu His Lys Val

340	345	350
Asn Ile Ser Asn Tyr Ser Leu Val Met Glu Ser Asp Ala Gly Thr Phe		
355	360	365
Leu Pro Thr Gly Leu Gln Phe Thr Gly Ser Glu Lys Ala Arg Ala Ile		
370	375	380
Met Glu Glu Val Met Ser Leu Leu Gln Pro Leu Asn Ile Thr Gln Val		
385	390	395
Leu Ser His Gly Glu Gly Thr Asp Ile Asn Phe Trp Ile Gln Ala Gly		
405	410	415
Val Pro Gly Ala Ser Leu Leu Asp Asp Leu Tyr Lys Tyr Phe Phe Phe		
420	425	430
His His Ser His Gly Asp Thr Met Thr Val Met Asp Pro Lys Gln Met		
435	440	445
Asn Val Ala Ala Ala Val Trp Ala Val Val Ser Tyr Val Val Ala Asp		
450	455	460
Met Glu Glu Met Leu Pro Arg Ser		
465	470	

<210> 51

<211> 750

<212> PRT

<213> Homo sapiens

<400> 51

Met Trp Asn Leu Leu His Glu Thr Asp Ser Ala Val Ala Thr Ala Arg	
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20	25 30
Phe Leu Leu Gly Phe Leu Phe Gly Trp Phe Ile Lys Ser Ser Asn Glu	
35	40 45
Ala Thr Asn Ile Thr Pro Lys His Asn Met Lys Ala Phe Leu Asp Glu	
50	55 60
Leu Lys Ala Glu Asn Ile Lys Lys Phe Leu His Asn Phe Thr Gln Ile	
65	70 75 80
Pro His Leu Ala Gly Thr Glu Gln Asn Phe Gln Leu Ala Lys Gln Ile	
85	90 95
Gln Ser Gln Trp Lys Glu Phe Gly Leu Asp Ser Val Glu Leu Ala His	
100	105 110
Tyr Asp Val Leu Leu Ser Tyr Pro Asn Lys Thr His Pro Asn Tyr Ile	
115	120 125

Ser Ile Ile Asn Glu Asp Gly Asn Glu Ile Phe Asn Thr Ser Leu Phe
 130 135 140
 Glu Pro Pro Pro Pro Gly Tyr Glu Asn Val Ser Asp Ile Val Pro Pro
 145 150 155 160
 Phe Ser Ala Phe Ser Pro Gln Gly Met Pro Glu Gly Asp Leu Val Tyr
 165 170 175
 Val Asn Tyr Ala Arg Thr Glu Asp Phe Phe Lys Leu Glu Arg Asp Met
 180 185 190
 Lys Ile Asn Cys Ser Gly Lys Ile Val Ile Ala Arg Tyr Gly Lys Val
 195 200 205
 Phe Arg Gly Asn Lys Val Lys Asn Ala Gln Leu Ala Gly Ala Lys Gly
 210 215 220
 Val Ile Leu Tyr Ser Asp Pro Ala Asp Tyr Phe Ala Pro Gly Val Lys
 225 230 235 240
 Ser Tyr Pro Asp Gly Trp Asn Leu Pro Gly Gly Gly Val Gln Arg Gly
 245 250 255
 Asn Ile Leu Asn Leu Asn Gly Ala Gly Asp Pro Leu Thr Pro Gly Tyr
 260 265 270
 Pro Ala Asn Glu Tyr Ala Tyr Arg Arg Gly Ile Ala Glu Ala Val Gly
 275 280 285
 Leu Pro Ser Ile Pro Val His Pro Ile Gly Tyr Tyr Asp Ala Gln Lys
 290 295 300
 Leu Leu Glu Lys Met Gly Gly Ser Ala Pro Pro Asp Ser Ser Trp Arg
 305 310 315 320
 Gly Ser Leu Lys Val Pro Tyr Asn Val Gly Pro Gly Phe Thr Gly Asn
 325 330 335
 Phe Ser Thr Gln Lys Val Lys Met His Ile His Ser Thr Asn Glu Val
 340 345 350
 Thr Arg Ile Tyr Asn Val Ile Gly Thr Leu Arg Gly Ala Val Glu Pro
 355 360 365
 Asp Arg Tyr Val Ile Leu Gly Gly His Arg Asp Ser Trp Val Phe Gly
 370 375 380
 Gly Ile Asp Pro Gln Ser Gly Ala Ala Val Val His Glu Ile Val Arg
 385 390 395 400
 Ser Phe Gly Thr Leu Lys Lys Glu Gly Trp Arg Pro Arg Arg Thr Ile
 405 410 415
 Leu Phe Ala Ser Trp Asp Ala Glu Glu Phe Gly Leu Leu Gly Ser Thr
 420 425 430
 Glu Trp Ala Glu Glu Asn Ser Arg Leu Leu Gln Glu Arg Gly Val Ala
 435 440 445
 Tyr Ile Asn Ala Asp Ser Ser Ile Glu Gly Asn Tyr Thr Leu Arg Val

450	455	460															
Asp	Cys	Thr	Pro	Leu	Met	Tyr	Ser	Leu	Val	His	Asn	Leu	Thr	Lys	Glu		
465					470					475					480		
Leu	Lys	Ser	Pro	Asp	Glu	Gly	Phe	Glu	Gly	Lys	Ser	Leu	Tyr	Glu	Ser		
				485					490					495			
Trp	Thr	Lys	Lys	Ser	Pro	Ser	Pro	Glu	Phe	Ser	Gly	Met	Pro	Arg	Ile		
			500					505					510				
Ser	Lys	Leu	Gly	Ser	Gly	Asn	Asp	Phe	Glu	Val	Phe	Phe	Gln	Arg	Leu		
		515					520					525					
Gly	Ile	Ala	Ser	Gly	Arg	Ala	Arg	Tyr	Thr	Lys	Asn	Trp	Glu	Thr	Asn		
	530					535					540						
Lys	Phe	Ser	Gly	Tyr	Pro	Leu	Tyr	His	Ser	Val	Tyr	Glu	Thr	Tyr	Glu		
545					550					555					560		
Leu	Val	Glu	Lys	Phe	Tyr	Asp	Pro	Met	Phe	Lys	Tyr	His	Leu	Thr	Val		
				565					570					575			
Ala	Gln	Val	Arg	Gly	Gly	Met	Val	Phe	Glu	Leu	Ala	Asn	Ser	Ile	Val		
			580					585					590				
Leu	Pro	Phe	Asp	Cys	Arg	Asp	Tyr	Ala	Val	Val	Leu	Arg	Lys	Tyr	Ala		
		595					600					605					
Asp	Lys	Ile	Tyr	Ser	Ile	Ser	Met	Lys	His	Pro	Gln	Glu	Met	Lys	Thr		
	610					615					620						
Tyr	Ser	Val	Ser	Phe	Asp	Ser	Leu	Phe	Ser	Ala	Val	Lys	Asn	Phe	Thr		
625					630					635					640		
Glu	Ile	Ala	Ser	Lys	Phe	Ser	Glu	Arg	Leu	Gln	Asp	Phe	Asp	Lys	Ser		
				645					650					655			
Asn	Pro	Ile	Val	Leu	Arg	Met	Met	Asn	Asp	Gln	Leu	Met	Phe	Leu	Glu		
			660					665					670				
Arg	Ala	Phe	Ile	Asp	Pro	Leu	Gly	Leu	Pro	Asp	Arg	Pro	Phe	Tyr	Arg		
		675					680					685					
His	Val	Ile	Tyr	Ala	Pro	Ser	Ser	His	Asn	Lys	Tyr	Ala	Gly	Glu	Ser		
	690					695					700						
Phe	Pro	Gly	Ile	Tyr	Asp	Ala	Leu	Phe	Asp	Ile	Glu	Ser	Lys	Val	Asp		
705					710					715					720		
Pro	Ser	Lys	Ala	Trp	Gly	Glu	Val	Lys	Arg	Gln	Ile	Tyr	Val	Ala	Ala		
			725						730					735			
Phe	Thr	Val	Gln	Ala	Ala	Ala	Glu	Thr	Leu	Ser	Glu	Val	Ala				
			740				745						750				

<210> 52

<211> 265

<212> PRT

<213> *Saccharomyces cerevisiae*

<400> 52

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Lys	Leu	Ile	Ala	Asn	Ile	Ala	Leu	Asn	Ile	Asp	Tyr	Ser	Leu	Tyr	Phe	
			20					25					30			
Ala	Met	Asp	Ser	Tyr	Val	Glu	Phe	Ile	Lys	Thr	Gln	Asn	Ile	Ile	Ala	
		35					40					45				
Asp	Thr	Lys	His	Gly	Asp	Pro	Asp	Asn	Ile	Val	Ala	Leu	Gly	Ala	His	
	50					55					60					
Ser	Asp	Ser	Val	Glu	Glu	Gly	Pro	Gly	Ile	Asn	Asp	Asp	Gly	Ser	Gly	
65					70					75					80	
Thr	Ile	Ser	Leu	Leu	Asn	Val	Ala	Lys	Gln	Leu	Thr	His	Phe	Lys	Ile	
				85					90					95		
Asn	Asn	Lys	Val	Arg	Phe	Ala	Trp	Trp	Ala	Ala	Glu	Glu	Glu	Gly	Leu	
			100					105					110			
Leu	Gly	Ser	Asn	Phe	Tyr	Ala	Tyr	Asn	Leu	Thr	Lys	Glu	Glu	Asn	Ser	
		115					120					125				
Lys	Ile	Arg	Val	Phe	Met	Asp	Tyr	Asp	Met	Met	Ala	Ser	Pro	Asn	Tyr	
	130					135					140					
Glu	Tyr	Glu	Ile	Tyr	Asp	Ala	Asn	Asn	Lys	Glu	Asn	Pro	Lys	Gly	Ser	
145					150					155					160	
Glu	Glu	Leu	Lys	Asn	Leu	Tyr	Val	Asp	Tyr	Tyr	Lys	Ala	His	His	Leu	
				165					170					175		
Asn	Tyr	Thr	Leu	Val	Pro	Phe	Asp	Gly	Arg	Ser	Asp	Tyr	Val	Gly	Phe	
			180					185					190			
Ile	Asn	Asn	Gly	Ile	Pro	Ala	Gly	Gly	Ile	Ala	Thr	Gly	Ala	Glu	Lys	
		195					200					205				
Asn	Asn	Val	Asn	Asn	Gly	Lys	Val	Leu	Asp	Arg	Cys	Tyr	His	Gln	Leu	
	210					215					220					
Cys	Asp	Asp	Val	Ser	Asn	Leu	Ser	Trp	Asp	Ala	Phe	Ile	Thr	Asn	Thr	
225					230					235					240	
Lys	Leu	Ile	Ala	His	Ser	Val	Ala	Thr	Tyr	Ala	Asp	Ser	Phe	Glu	Gly	
				245					250					255		
Phe	Pro	Lys	Arg	Glu	Thr	Gln	Lys	His								
			260					265								

<210> 53

<211> 268

<212> PRT

<213> *Vibrio cholerae*

<400> 53

Gln Ile Thr Asn Thr Ile Arg Ala Leu Ser Ser Phe Asn Asn Arg Phe
1 5 10 15

Tyr Thr Thr Ala Ser Gly Ala Gln Ala Ser Asp Trp Leu Ala Asn Glu
20 25 30

Trp Arg Ser Leu Ile Ser Ser Leu Pro Gly Ser Arg Ile Glu Gln Ile
35 40 45

Lys His Ser Gly Tyr Asn Gln Lys Ser Val Val Leu Thr Ile Gln Gly
50 55 60

Ser Glu Lys Pro Asp Glu Trp Val Ile Val Gly Gly His Leu Asp Ser
65 70 75 80

Thr Leu Gly Ser His Thr Asn Glu Gln Ser Ile Ala Pro Gly Ala Asp
85 90 95

Asp Asp Ala Ser Gly Ile Ala Ser Leu Ser Glu Ile Ile Arg Val Leu
100 105 110

Arg Asp Asn Asn Phe Arg Pro Lys Arg Ser Ala Ala Leu Met Ala Tyr
115 120 125

Ala Ala Glu Glu Val Gly Leu Arg Gly Ser Gln Asp Pro Ala Asn Gln
130 135 140

Tyr Lys Ala Gln Gly Lys Lys Val Val Ser Val Leu Gln Leu Asp Met
145 150 155 160

Thr Asn Tyr Arg Gly Ser Ala Glu Asp Ile Val Phe Ile Thr Asp Tyr
165 170 175

Thr Asp Ser Asn Leu Thr Gln Phe Leu Thr Thr Leu Ile Asp Glu Tyr
180 185 190

Leu Pro Glu Leu Thr Tyr Gly Tyr Asp Arg Cys Gly Tyr Ala Cys Ser
195 200 205

Asp His Ala Ser Trp His Lys Ala Gly Phe Ser Ala Ala Met Pro Phe
210 215 220

Glu Ser Lys Phe Lys Asp Tyr Asn Pro Lys Ile His Thr Ser Gln Asp
225 230 235 240

Thr Leu Ala Asn Ser Asp Pro Thr Gly Asn His Ala Val Thr Phe Thr
245 250 255

Lys Leu Gly Leu Ala Tyr Val Ile Glu Met Ala Asn
260 265

<210> 54

<211> 268

<212> PRT

<213> Aeromonas proteolytica

<400> 54

Gln	Ile	Thr	Gly	Thr	Ile	Ser	Ser	Leu	Glu	Ser	Phe	Thr	Asn	Arg	Phe
1				5					10					15	
Tyr	Thr	Thr	Thr	Ser	Gly	Ala	Gln	Ala	Ser	Asp	Trp	Ile	Ala	Ser	Glu
			20					25					30		
Trp	Gln	Ala	Leu	Ser	Ala	Ser	Leu	Pro	Asn	Ala	Ser	Val	Lys	Gln	Val
		35					40					45			
Ser	His	Ser	Gly	Tyr	Asn	Gln	Lys	Ser	Val	Val	Met	Thr	Ile	Thr	Gly
	50					55					60				
Ser	Glu	Ala	Pro	Asp	Glu	Trp	Ile	Val	Ile	Gly	Gly	His	Leu	Asp	Ser
65					70					75					80
Thr	Ile	Gly	Ser	His	Thr	Asn	Glu	Gln	Ser	Val	Ala	Pro	Gly	Ala	Asp
				85					90					95	
Asp	Asp	Ala	Ser	Gly	Ile	Ala	Ala	Val	Thr	Glu	Val	Ile	Arg	Val	Leu
			100					105					110		
Ser	Glu	Asn	Asn	Phe	Gln	Pro	Lys	Arg	Ser	Ile	Ala	Phe	Met	Ala	Tyr
		115					120					125			
Ala	Ala	Glu	Glu	Val	Gly	Leu	Arg	Gly	Ser	Gln	Asp	Leu	Ala	Asn	Gln
		130				135					140				
Tyr	Lys	Ser	Glu	Gly	Lys	Asn	Val	Val	Ser	Ala	Leu	Gln	Leu	Asp	Met
145					150				155						160
Thr	Asn	Tyr	Lys	Gly	Ser	Ala	Gln	Asp	Val	Val	Phe	Ile	Thr	Asp	Tyr
				165					170					175	
Thr	Asp	Ser	Asn	Phe	Thr	Gln	Tyr	Leu	Thr	Gln	Leu	Met	Asp	Glu	Tyr
			180					185					190		
Leu	Pro	Ser	Leu	Thr	Tyr	Gly	Phe	Asp	Thr	Cys	Gly	Tyr	Ala	Cys	Ser
		195					200					205			
Asp	His	Ala	Ser	Trp	His	Asn	Ala	Gly	Tyr	Pro	Ala	Ala	Met	Pro	Phe
	210					215					220				
Glu	Ser	Lys	Phe	Asn	Asp	Tyr	Asn	Pro	Arg	Ile	His	Thr	Thr	Gln	Asp
225					230					235					240
Thr	Leu	Ala	Asn	Ser	Asp	Pro	Thr	Gly	Ser	His	Ala	Lys	Lys	Phe	Thr
			245						250					255	
Gln	Leu	Gly	Leu	Ala	Tyr	Ala	Ile	Glu	Met	Gly	Ser				
			260					265							

<210> 55

<211> 263

<212> PRT

<213> Streptomyces griseus

<400> 55

Asn Asn Gly Gly Asn Arg Ala His Gly Arg Pro Gly Tyr Lys Ala Ser
1 5 10 15

Val Asp Tyr Val Lys Ala Lys Leu Asp Ala Ala Gly Tyr Thr Thr Thr
20 25 30

Leu Gln Gln Phe Thr Ser Gly Gly Ala Thr Gly Tyr Asn Leu Ile Ala
35 40 45

Asn Trp Pro Gly Gly Asp Pro Asn Lys Val Leu Met Ala Gly Ala His
50 55 60

Leu Asp Ser Val Ser Ser Gly Ala Gly Ile Asn Asp Asn Gly Ser Gly
65 70 75 80

Ser Ala Ala Val Leu Glu Thr Ala Leu Ala Val Ser Arg Ala Gly Tyr
85 90 95

Gln Pro Asp Lys His Leu Arg Phe Ala Trp Trp Gly Ala Glu Glu Leu
100 105 110

Gly Leu Ile Gly Ser Lys Phe Tyr Val Asn Asn Leu Pro Ser Ala Asp
115 120 125

Arg Ser Lys Leu Ala Gly Tyr Leu Asn Phe Asp Met Ile Gly Ser Pro
130 135 140

Asn Pro Gly Tyr Phe Val Tyr Asp Asp Asp Pro Val Ile Glu Lys Thr
145 150 155 160

Phe Lys Asn Tyr Phe Ala Gly Leu Asn Val Pro Thr Glu Ile Glu Thr
165 170 175

Glu Gly Asp Gly Arg Ser Asp His Ala Pro Phe Lys Asn Val Gly Val
180 185 190

Pro Val Gly Gly Leu Phe Thr Gly Ala Gly Tyr Thr Lys Ser Ala Ala
195 200 205

Gln Ala Gln Lys Trp Gly Gly Thr Ala Gly Gln Ala Phe Asp Arg Cys
210 215 220

Tyr His Ser Ser Cys Asp Ser Leu Ser Asn Ile Asn Asp Thr Ala Leu
225 230 235 240

Asp Arg Asn Ser Asp Ala Ala Ala His Ala Ile Trp Thr Leu Ser Ser
245 250 255

Gly Thr Gly Glu Pro Pro Thr
260

<210> 56

<211> 282

<212> PRT

<213> Homo sapiens

<400> 56

Asp	Ala	Gln	Lys	Leu	Leu	Glu	Lys	Met	Gly	Gly	Ser	Ala	Pro	Pro	Asp
1				5					10					15	
Ser	Ser	Trp	Arg	Gly	Ser	Leu	Lys	Val	Pro	Tyr	Asn	Val	Gly	Pro	Gly
			20					25					30		
Phe	Thr	Gly	Asn	Phe	Ser	Thr	Gln	Lys	Val	Lys	Met	His	Ile	His	Ser
		35					40					45			
Thr	Asn	Glu	Val	Thr	Arg	Ile	Tyr	Asn	Val	Ile	Gly	Thr	Leu	Arg	Gly
	50					55					60				
Ala	Val	Glu	Pro	Asp	Arg	Tyr	Val	Ile	Leu	Gly	Gly	His	Arg	Asp	Ser
65					70					75					80
Trp	Val	Phe	Gly	Gly	Ile	Asp	Pro	Gln	Ser	Gly	Ala	Ala	Val	Val	His
				85					90					95	
Glu	Ile	Val	Arg	Ser	Phe	Gly	Thr	Leu	Lys	Lys	Glu	Gly	Trp	Arg	Pro
			100					105					110		
Arg	Arg	Thr	Ile	Leu	Phe	Ala	Ser	Trp	Asp	Ala	Glu	Glu	Phe	Gly	Leu
		115					120					125			
Leu	Gly	Ser	Thr	Glu	Trp	Ala	Glu	Glu	Asn	Ser	Arg	Leu	Leu	Gln	Glu
	130					135					140				
Arg	Gly	Val	Ala	Tyr	Ile	Asn	Ala	Asp	Ser	Ser	Ile	Glu	Gly	Asn	Tyr
145					150					155					160
Thr	Leu	Arg	Val	Asp	Cys	Thr	Pro	Leu	Met	Tyr	Ser	Leu	Val	His	Asn
				165					170					175	
Leu	Thr	Lys	Glu	Leu	Lys	Ser	Pro	Asp	Glu	Gly	Phe	Glu	Gly	Lys	Ser
			180					185					190		
Leu	Tyr	Glu	Ser	Trp	Thr	Lys	Lys	Ser	Pro	Ser	Pro	Glu	Phe	Ser	Gly
	195						200					205			
Met	Pro	Arg	Ile	Ser	Lys	Leu	Gly	Ser	Gly	Asn	Asp	Phe	Glu	Val	Phe
	210					215					220				
Phe	Gln	Arg	Leu	Gly	Ile	Ala	Ser	Gly	Arg	Ala	Arg	Tyr	Thr	Lys	Asn
225					230					235					240
Trp	Glu	Thr	Asn	Lys	Phe	Ser	Gly	Tyr	Pro	Leu	Tyr	His	Ser	Val	Tyr

245

250

255

Glu Thr Tyr Glu Leu Val Glu Lys Phe Tyr Asp Pro Met Phe Lys Tyr
 260 265 270

His Leu Thr Val Ala Gln Val Arg Gly Gly
 275 280

<210> 57

<211> 282

<212> PRT

<213> Homo sapiens

<400> 57

Asp Ala Glu Ile Leu Leu Arg Tyr Leu Gly Gly Ile Ala Pro Pro Asp
 1 5 10 15

Lys Ser Trp Lys Gly Ala Leu Asn Val Ser Tyr Ser Ile Gly Pro Gly
 20 25 30

Phe Thr Gly Ser Asp Ser Phe Arg Lys Val Arg Met His Val Tyr Asn
 35 40 45

Ile Asn Lys Ile Thr Arg Ile Tyr Asn Val Val Gly Thr Ile Arg Gly
 50 55 60

Ser Val Glu Pro Asp Arg Tyr Val Ile Leu Gly Gly His Arg Asp Ser
 65 70 75 80

Trp Val Phe Gly Ala Ile Asp Pro Thr Ser Gly Val Ala Val Leu Gln
 85 90 95

Glu Ile Ala Arg Ser Phe Gly Lys Leu Met Ser Lys Gly Trp Arg Pro
 100 105 110

Arg Arg Thr Ile Ile Phe Ala Ser Trp Asp Ala Glu Glu Phe Gly Leu
 115 120 125

Leu Gly Ser Thr Glu Trp Ala Glu Glu Asn Val Lys Ile Leu Gln Glu
 130 135 140

Arg Ser Ile Ala Tyr Ile Asn Ser Asp Ser Ser Ile Glu Gly Asn Tyr
 145 150 155 160

Thr Leu Arg Val Asp Cys Thr Pro Leu Leu Tyr Gln Leu Val Tyr Lys
 165 170 175

Leu Thr Lys Glu Ile Pro Ser Pro Asp Asp Gly Phe Glu Ser Lys Ser
 180 185 190

Leu Tyr Glu Ser Trp Leu Glu Lys Asp Pro Ser Pro Glu Asn Lys Asn
 195 200 205

Leu Pro Arg Ile Asn Lys Leu Gly Ser Gly Ser Asp Phe Glu Ala Tyr
 210 215 220

Phe Gln Arg Leu Gly Ile Ala Ser Gly Arg Ala Arg Tyr Thr Lys Asn
225 230 235 240

Lys Lys Thr Asp Lys Tyr Ser Ser Tyr Pro Val Tyr His Thr Ile Tyr
245 250 255

Glu Thr Phe Glu Leu Val Glu Lys Phe Tyr Asp Pro Thr Phe Lys Lys
260 265 270

Gln Leu Ser Val Ala Gln Leu Arg Gly Ala
275 280

<210> 58

<211> 283

<212> PRT

<213> Homo sapiens

<400> 58

Arg Asp Leu Leu Cys Asn Leu Asn Gly Thr Leu Ala Pro Ala Thr Trp
1 5 10 15

Gln Gly Ala Leu Gly Cys His Tyr Arg Leu Gly Pro Gly Phe Arg Pro
20 25 30

Asp Gly Asp Phe Pro Ala Asp Ser Gln Val Asn Val Ser Val Tyr Asn
35 40 45

Arg Leu Glu Leu Arg Asn Ser Ser Asn Val Leu Gly Ile Ile Arg Gly
50 55 60

Ala Val Glu Pro Asp Arg Tyr Val Leu Tyr Gly Asn His Arg Asp Ser
65 70 75 80

Trp Val His Gly Ala Val Asp Pro Ser Ser Gly Thr Ala Val Leu Leu
85 90 95

Glu Leu Ser Arg Val Leu Gly Thr Leu Leu Lys Lys Gly Thr Trp Arg
100 105 110

Pro Arg Arg Ser Ile Val Phe Ala Ser Trp Gly Ala Glu Glu Phe Gly
115 120 125

Leu Ile Gly Ser Thr Glu Phe Thr Glu Glu Phe Phe Asn Lys Leu Gln
130 135 140

Glu Arg Thr Val Ala Tyr Ile Asn Val Asp Ile Ser Val Phe Ala Asn
145 150 155 160

Ala Thr Leu Arg Val Gln Gly Thr Pro Pro Val Gln Ser Val Val Phe
165 170 175

Ser Ala Thr Lys Glu Ile Arg Ser Pro Gly Pro Gly Asp Leu Ser Ile
180 185 190

Tyr Asp Asn Trp Ile Arg Tyr Phe Asn Arg Ser Ser Pro Val Tyr Gly
 195 200 205
 Leu Val Pro Ser Leu Gly Ser Leu Gly Ala Gly Ser Asp Tyr Ala Pro
 210 215 220
 Phe Val His Phe Leu Gly Ile Ser Ser Met Asp Ile Ala Tyr Thr Tyr
 225 230 235 240
 Asp Arg Ser Lys Thr Ser Ala Arg Ile Tyr Pro Thr Tyr His Thr Ala
 245 250 255
 Phe Asp Thr Phe Asp Tyr Val Asp Lys Phe Leu Asp Pro Gly Phe Ser
 260 265 270
 Ser His Gln Ala Val Ala Arg Thr Ala Gly Ser
 275 280

<210> 59

<211> 259

<212> PRT

<213> Homo sapiens

<400> 59

Ser Pro His Thr Gly Ile Gln Glu Tyr Gln Asp Gly Val Pro Lys Ile
 1 5 10 15
 Pro Thr Ala Cys Ile Thr Val Glu Asp Ala Glu Met Met Ser Arg Met
 20 25 30
 Ala Ser His Gly Ile Lys Ile Val Ile Gln Leu Lys Met Gly Ala Lys
 35 40 45
 Thr Tyr Pro Asp Thr Asp Ser Phe Asn Thr Val Ala Glu Ile Thr Gly
 50 55 60
 Ser Lys Tyr Pro Glu Gln Val Val Leu Val Ser Gly His Leu Asp Ser
 65 70 75 80
 Trp Asp Val Gly Gln Gly Ala Met Asp Asp Gly Gly Gly Ala Phe Ile
 85 90 95
 Ser Trp Glu Ala Leu Ser Leu Ile Lys Asp Leu Gly Leu Arg Pro Lys
 100 105 110
 Arg Thr Leu Arg Leu Val Leu Trp Thr Ala Glu Glu Gln Gly Gly Val
 115 120 125
 Gly Ala Phe Gln Tyr Tyr Gln Leu His Lys Val Asn Ile Ser Asn Tyr
 130 135 140
 Ser Leu Val Met Glu Ser Asp Ala Gly Thr Phe Leu Pro Thr Gly Leu
 145 150 155 160
 Gln Phe Thr Gly Ser Glu Lys Ala Arg Ala Ile Met Glu Glu Val Met

165

170

175

Ser Leu Leu Gln Pro Leu Asn Ile Thr Gln Val Leu Ser His Gly Glu
180 185 190

Gly Thr Asp Ile Asn Phe Trp Ile Gln Ala Gly Val Pro Gly Ala Ser
195 200 205

Leu Leu Asp Asp Leu Tyr Lys Tyr Phe Phe Phe His His Ser His Gly
210 215 220

Asp Thr Met Thr Val Met Asp Pro Lys Gln Met Asn Val Ala Ala Ala
225 230 235 240

Val Trp Ala Val Val Ser Tyr Val Val Ala Asp Met Glu Glu Met Leu
245 250 255

Pro Arg Ser